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ABSTRACT

This analysis focuses on school offerings and practices that limit or increase the course work taken by particular groups of students. The National Commission on Excellence in Education has recommended minimal requirements for high school graduation consisting of 4 years of English, 3 years of mathematics, science, and social studies, and one-half year of computer science. Two years of foreign language were recommended for college-bound students. Nevertheless, in spite of unambiguous findings about the relationship of course taking to academic achievement, many schools still do not require the recommended amount of course work. The dynamics underlying students' choices are complex, reflecting personal preferences and contextual factors. Some courses play special roles as gatekeepers. A good example is eighth-grade algebra. Taking algebra in eighth grade easily allows a full mathematics curriculum in high school. Advanced courses and gatekeeper courses are not equally available in all schools or to all students. As the proportion of low-income and minority students in school increases, the relative proportion of college-preparatory and advanced course sections decreases. Even a school with extensive course offerings may engage in practices that deny access to some groups of students. No practice distinguishes the opportunities available to groups of students as effectively as the creation of academic tracks. Requirements ensure engagement in basic course work for most or all students, while advanced offerings make it possible for students to attain excellence. Unfortunately, tracking can subvert the goals of these practices by creating groups of students for whom exposure to academic course work is minimal. (SLD)

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Course Taking in High School: Is Opportunity Equal?

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The courses students take are a key to the benefits that formal schooling can provide—from basic knowledge, to understandings and skills useful outside of school, to credentials that render access to employment and further education. Unfortunately, the courses that maximize these outcomes are not equally accessible to all groups of students. This *Spotlight* focuses on school offerings and practices that limit or increase the course work taken by particular groups of students.

The National Commission on Excellence in Education, in its 1983 report, *A Nation at Risk*, emphasized the dismal state of academic competence among American high school graduates. The Commission's report attributed the situation directly to a curriculum comprised of an abundance of survey courses and few courses with challenging content. The Commission recommended minimal requirements for high school graduation consisting of 4 years of English; 3 years of mathematics, science, and social studies; and one-half year of computer science. Two years of foreign language were recommended for college-bound students. Following publication of this report, many states, districts, and schools revised their requirements in the direction of its specifications.

Despite these changes, many schools still do not require the recommended amount of course work. Only 49% of high schools require 3 years of mathematics, and only about 28% of schools require 3 years of science (Finn, 1998). Further, among 1994 high school graduates, only 13% completed the full set of courses recommended by the Commission, and almost one-half of graduates did not complete the recommended course work in English, mathematics, science, and social studies alone.

COURSE TAKING AND ACADEMIC ACHIEVEMENT

Findings from research on the relationship of course taking to academic achievement are unambiguous. The National Educational Longitudinal Study, performed in 1988, indicates that, among eighth graders, mathematics proficiency is strongly related to taking algebra, science proficiency to taking science, and reading proficiency to taking regular English, in contrast to remedial English or no English. Other studies show that the association of course work to proficiency is evident even after student characteristics (e.g., socioeconomic status, aptitude, and prior achievement) are controlled statistically.

The universality of the relationship between course work and proficiency has been underscored in the literature in several ways. Research has shown that the relationship of mathematics performance with the number of courses taken is essentially the same for all demographic groups. Sebring (1987), for example, found that, while the impact of course taking differed between states and across subject areas (social studies, foreign languages, physical science, and mathematics), the relationship was consistently positive.

The extent of advanced course work in a subject area may be more important than the total amount of course work. A 1995 analysis of science and mathematics data from the National Assessment of Educational Progress (Williams, Atash, & Chaney, 1995) revealed that the strongest effects were for courses taken beyond the basic requirements. Similar conclusions have been drawn by other researchers.

Factors That Shape Programs of Study

The dynamics that underlie students' choices are complex. The courses students take reflect personal preferences as well as contextual factors, including offerings that are available and practices and policies that determine student access.

The configuration of courses available in a school delimits the courses stu-

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dents can take and thus what they learn. The curriculum can be comprised largely of "basic" or "survey" courses or, alternatively, can include a substantial number of advanced courses. Findings from the recently completed *Third International Mathematics and Science Study* (TIMSS) indicate that, on the whole, our curricula in these fields cover more topics but are less intensive than those of other countries; the typical American curriculum is described as "a mile wide and an inch deep" (Schmidt, McKnight, & Raizen, 1996, p. 34).

Some courses play a special role as "gatekeepers." A student who takes algebra in eighth grade can readily take a full mathematics curriculum in high school. However, a recent government report indicated that only 25% of U.S. eighth graders were enrolled in algebra, with even smaller percentages among low-income and minority students.

Advanced courses and gatekeeper courses are not equally available in all schools or to all groups of students. At the middle school level, Epstein and MacIver (1992) found that Catholic schools offer basic science and reading courses to more students and advanced courses and electives such as algebra and foreign languages to fewer students than do other schools. Through a survey of 1,200 public and private school teachers that focused on the racial/ethnic and socioeconomic composition of schools, Oakes (1990) found that, "As the proportion of low-income and minority students at a school increases, the relative proportion of college-preparatory and advanced course sections decreases" (p. 35). Calculus, a "gatekeeper" course, lies at the extreme. The number of sections (per pupil) in "high-wealth" schools was approximately 4 times that of "high-poverty" schools, even after eliminating over 50% of high-poverty schools that offered no calculus course at all.

Even a school with extensive course offerings may engage in practices that deny access to some groups of students. Graduation requirements are associated with course taking generally. Increased requirements, however, have an impact on introductory courses and benefit less able students in particular. Williams et al. (1995) identified schools whose requirements in each subject were "high" relative to state requirements, and, conversely, those that were "low." As expected, more courses were taken, on average, in high-requirement schools. The study also showed that more low-ability students enroll in science and mathematics courses in high-requirement schools.

No practice distinguishes the opportunities available to groups of students as definitively as the creation of academic tracks. Tracking (the assignment of students to a group that will be exposed to a particular curriculum) is "so much a part of how instruction is organized in secondary schools...that we seldom question it" (Oakes, 1985, p. 6). While the curriculum within a track is not the same for all students, differences among tracks are more significant. Students in higher tracks are exposed to more content, to more advanced content, and to more challenging content than students in lower tracks; students in lower tracks are denied access to this material (Oakes, 1990). Unfortunately, students are locked into lower tracks by mechanisms that make mobility all but impossible.

CONCLUSION

In *A Place Called School*, Goodlad (1984) observed that "the central problem for today and tomorrow is no longer access to school. It is access to knowledge for all. The true challenge is that of assuring both equity and quality in school programs" (p. 290). The task is not an easy one under the best of conditions. It is magnified in an educational system whose most prominent feature is variability.

Three practices encourage engagement in course taking by some groups of students while discouraging it in others. The decisions to offer advanced course work in particular disciplines and in graduation requirements work in tandem. First, *requirements* assure engagement in basic course taking for most or all students (Goodlad's "equity"). Second, *advanced offerings* make it possible for students to attain excellence (Goodlad's "quality"). Unfortunately, a third practice—*tracking*—can partially or wholly subvert these goals by creating groups of students for whom exposure to academic course work is minimal.

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